CLIENT IMPROVEMENT IN A COMMUNITY-BASED TRAINING CLINIC:

AS INDICATED BY THE OQ-45

A Dissertation

by

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ABSTRACT

By reviewing existing data collected at the Texas A&M Counseling and Assessment Clinic (CAC) in Bryan, TX, the present investigator seeks to better understand client response to therapy. Each client receiving services at the clinic completes the Outcome Questionnaire 45 (OQ-45) before every counseling session attended. The OQ-45 consists of 45 questions related to present emotional and psychological distress. The main goal of this study is to provide information regarding clients' response to therapeutic interventions as measured by their distress levels on the OQ-45. The OQ-45 is an empirically validated measure widely used throughout psychotherapy settings and has been used in the CAC since 2005. Most of the existing research related to dose-response information obtained via the OQ-45 has been implemented at university student counseling centers with a predominantly Caucasian, affluent, and religious population. The present study seeks to expand the knowledge of the field to a more diverse population and unique training setting for budding psychologists.

Survival analyses were conducted and results indicate 13 sessions are necessary for a majority of clients from this rural and low-income population to achieve clinically significant change. Additionally, a mere seven sessions are necessary for a majority of clients to achieve reliable improvement. In a country that continues grow in population size and diversity, more information is needed regarding the mental healthcare system and the response of those seeking therapy, this study provides some of that insight.

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CHAPTER I

INTRODUCTION

The term psychotherapy has many interpretations; but for the remainder of this report, psychotherapy is, as Dr. Herkov described in his 2012 report, "a process whereby psychological problems are treated through communication and relationship factors between an individual and a therapist" (p. 1). Psychotherapy reviewed in this report is guided by theoretical principals and implemented with the use of structure and techniques supported by research evidence. Psychotherapy is characterized by a complex professional relationship with a goal to treat and reduce psychological discomfort or symptoms of psychological disorders. With the use of techniques validated by quality research and cultivated by extensive professional training, psychotherapists can hope to encourage clinically significant psychological change and growth for individuals seeking help.

Psychotherapy and Change

A common motivation for individuals who seek psychotherapy is the desire to make changes. Individuals may want to change how they interact with others, the amount of stress experienced, reduce bad habits, or countless other aspects of the human experience. The common understanding is that psychotherapy helps individuals in their attempt to make such desired changes. With high consumer expectations, psychotherapists have the responsibility to deliver services that promote substantial healthy change. *Clinically significant change* is defined as a noticeable and meaningful

shift in the client's psychological distress levels. The shift is characterized by a move from dysfunctional levels of psychological distress to functional levels of psychological distress (Tingey, Lambert, Burlingame, & Hansen, 1996). Some clients may improve without achieving clinically significant change, but as a construct, clinically significant change is important because it helps to distinguish and quantify how much change occurred and signifies readiness for termination.

Effectiveness of Psychotherapy

Measuring the amount of improvement in clients' level of psychological distress is a common way to assess the effectiveness of psychotherapy. Psychotherapy can be determined a success when psychological distress sufficiently decreases in severity for clients to reach normal ranges of psychological distress. To substantiate claims that psychotherapy is effective, improvement in psychological symptoms must be reliably measured. Many researchers have argued for the necessity of randomized clinical trials (RCT's) to provide evidence that psychotherapy is an effective treatment. However, even without the experimental control an RCT provides, *treatment as usual* (TAU) in natural settings boasts comparable effectiveness (Minami, et al., 2008). TAU for psychotherapy is defined as the delivery of evidence-based practices by psychotherapists who adhere to APA's ethical guidelines. Although RCT's have their place, the study of TAU provides evidence regarding the usefulness of psychotherapy in common practice. In providing TAU, practitioners are able to choose their treatment modalities as they see fit for each client. Therefore, research that evaluates TAU is valuable in estimating real world effectiveness of psychotherapy.

Reliable Measurement of Change

To quantify the amount of change being produced throughout therapy, psychological symptoms must be measured. The field of psychology lacks purely objective measures of psychological symptoms, and therapist ratings of client progress are often skewed towards the positive (Lambert, 2005). Therefore, client self-report remains the method used to measure unobservable psychological factors and traits. Assessment of treatment success by clients' subjective reports of distress is appropriate, because it is the clients' same subjective perception of distress that initiates help-seeking behaviors.

Monitoring Psychotherapy

Assessments are predominantly used to assist with differential diagnosis, treatment planning, tracking treatment progress, and measuring client outcomes. Some assessments focus on specific areas of interest (i.e., a specific diagnosis such as depression), others attempt to remain broad. Psychological distress is a construct often monitored because it matches changes in psychological symptoms. Monitoring client distress levels provides longitudinal data that can establish patterns of recovery from psychological difficulties. Monitoring also provides information regarding length of treatment necessary to facilitate clinically significant change. Such data helps to determine the effectiveness and efficiency of psychotherapy.

Sensitivity to Change

Tracking client distress levels remains important to determine overall improvement from psychotherapy. The Outcome Questionnaire 45 (OQ-45) is an

instrument that has been empirically validated for its usefulness as a measure of client distress level (Lambert, et al., 1996; Wells, Burlingame, Lambert, Hoag, & Hope, 1996). The OQ-45 is also sensitive to client change (Burlingame et al., 1995; Lambert, Huefner, and Reisinger, 1996; Minami, et al., 2008). The constructs measured by the OQ-45 change frequently and can noticeably impact clients' quality of life.

Practitioners may easily evaluate client distress prior to each psychotherapy session and have the option to view the results for each individual administration of the OQ-45. The computer-generated output provides a structured clinical support tool (CST) and feedback on the client's progress in the form of a message with an accompanying color code. Knowing the level of clients' self-reported distress prior to entering each session can set the stage for early detection and intervention when appropriate. High levels of distress and critical items that indicate dangerous suicidal ideations or substance related issues may be identified and reported to clinicians before the client even enters the room. Often, clients may find such inventories less threatening than face-to-face disclosure of harmful thoughts or actions (Lambert & Hawkins, 2004).

Feedback to clients regarding their recovery, improvement, non-change, or deterioration is extremely important for providers to consider when planning psychotherapeutic interventions. If clients report an increase in distress levels, therapists have the opportunity to respond and adjust their interventions to increase the likelihood of client improvement. In a training setting such as the clinic used for the present study, it should be advantageous for inexperienced practitioners to receive notification when treatment modifications are needed. Indeed, previous studies have found that providing

clinicians access to the clients progress improves treatment outcomes (Lambert, et al., 1996; Okiishi, et al., 2006; Reese, Norsworthy, & Rowlands, 2009). By employing intentional and immediate interventions based on feedback provided by the OQ-45, therapists can facilitate open discussion with clients regarding their levels of distress. Such discussions can be useful interventions on their own.

By gaining enhanced understanding of client distress level from administering quick outcome measurements, practitioners increase their likelihood of providing quality interventions in a timely manner. Responsive treatment to client distress levels is a sign of first-rate psychotherapeutic interventions (Lambert & Hawkins, 2004). In addition to providing therapists with up to date information on their client's distress level, the OQ-45 can also provide evidence of treatment effectiveness. Evaluating client outcomes using data provided by the OQ-45 is valuable and helps to understand the utility of services provided in a particular community clinic. Determining treatment effectiveness requires systematic measurement of client progress.

Universities with applied psychology training programs greatly benefit from evaluating client outcomes with measurements like the OQ-45. Not only is it important for trainees to monitor their clients' progress, but trainees also benefit from exposure to treatment feedback (Percevic, Lambert, & Kordy, 2004; Reese, Norsworthy, & Rowlands, 2009). Additionally, from a program evaluation standpoint, such outcomes data are invaluable. The current study will examine OQ-45 data gathered from a micropolitan community health clinic that serves as a training facility for graduate students in a doctoral counseling psychology program.

Importance of the Present Study

The body of research related to client outcomes in psychotherapy is dominated by client samples of undergraduate populations, employee assistance programs, and inpatient facilities (Burlingame et al., 1995; Lambert, Huefner, Reisinger, 1996; Minami, et al., 2008). Community clinics, private practice settings, and mental healthcare provided for low-income populations are not commonly evaluated. Therefore, a huge subset of the United States' population is underrepresented when investigating the effectiveness of psychotherapy.

The most comprehensive research studies that measure clinically significant change with the OQ-45 were collected from restricted community samples of fairly homogenous ethnic and socioeconomic groups. Lacking in nearly all samples is adequate representation of ethnic minorities and individuals from low-income households and rural areas. The present study evaluates a unique sample from low-income households and rural areas. This sample provides an important expansion on the body of research already implemented with predominantly middle to upper-middle class samples. To address this issue, it will be important to monitor differences in treatment outcomes among participants from different levels of social-economic households.

Additionally, it is important to note that depending on the subset of a population represented by a sample, treatment outcomes may differ. Because the present study sample differs in certain ways from the norming studies (Lambert, et al., 1996), it is important to evaluate the appropriateness of cutoff scores and the reliable change index. Aspects like cutoff scores and reliable change indices may be affected by the higher or

lower comparative severity of psychological distress between samples. Evaluating these differences allows for a critical examination of prior findings as well as emphasizes the importance of research with diverse samples.

Given the potential for significant deviation in severity of psychological distress and treatment outcomes, as compared to the norming studies, the trajectory of client change may also differ greatly. The present study utilizes analyses that highlight multiple aspects of positive and negative client change as well as the trajectory at which most clients experience significant change. Results are compared to previous research in different settings to determine the appropriateness of previously established metrics of significant changes in client distress.

Evaluation of treatment effectiveness is determined by measuring changes in clients' psychological distress levels during treatment as usual (TAU). An additional unique contribution of this study is the setting in which data were collected. Graduate students primarily run the Texas A&M Counseling and Assessment Clinic (CAC), and therapy is implemented only by psychologists-in-training in the Counseling Psychology doctoral program. In addition to investigating a unique sample, this study attempts to answer specific research questions adding to the knowledge base of psychotherapy and its effectiveness in natural settings.

Research Questions

Question one: As measured by the OQ-45, how many psychotherapy sessions, on average, are required for clients at the Texas A&M University Counseling and Assessment Clinic to achieve either clinically significant change (recover) or reliably

improve/deteriorate?

Question two: Will there be differences in number of clients who recover, improve, or deteriorate among different social economic levels?

Question three: Will the clinical cutoff score and reliable change (RCI) for this study's community sample differ from the cutoff and RCI calculated in the studies on which the OQ-45 was normed?

CHAPTER II

LITERATURE REVIEW

A primary goal for all psychotherapists is to promote positive psychological change and growth for clients. According to the ethical principles and code of conduct established by the American Psychological Association (2010), the first of five general principles is beneficence and nonmaleficence. In applied psychology, the principle of beneficence requires psychologists to strive to benefit those with whom they work and the principle of nonmaleficence requires that they take care to do no harm. For all practicing psychologists, especially those in beginning stages of professional training, it is essential to strictly adhere to and remain mindful of ethical guidelines. Responsible practitioners and mental health organizations implement methods to regularly monitor and confirm effective treatment practices.

Effective Treatment Practices

Seligman (1995) argued the difference between efficacy and effectiveness in psychotherapy. Efficacy is used to denote the effects of psychotherapy in RCT's, whereas effectiveness indicates the effects of psychotherapy in natural clinical practice. RCT's provide a significant proportion of evidence for the efficacy of psychotherapy dating back to the 1970's; however, the research on effectiveness of treatment in natural settings is not as prevalent (Minami, et al., 2008).

Responsibility for Effectiveness of Treatment

Aside from the primary responsibility to provide a quality service for people in

need of help, mental healthcare delivery in the United States has become a difficult system for providers to navigate. Insurance companies and managed care organizations (MCO's) have influenced the delivery of psychotherapeutic interventions in numerous ways. Some changes helped to increase availability of mental health services, such as the increase of brief therapeutic interventions when appropriate for high functioning individuals. In other instances, insurance and funding agencies can hinder the delivery of appropriate therapeutic interventions when restrictions are placed on the length and mode of services in which they are willing to fund. When individuals are financially discouraged from seeking services that could prove helpful to increase well-being, it creates a public health problem. Key questions addressed by insurance companies and managed healthcare organizations are related to the effectiveness and efficiency of treatments delivered. Monitoring client progress with the OQ-45 provides justification for further treatment or treatment termination. Providers can utilize outcome data throughout treatment as an additional form of data regarding their clients' progress in therapy. Without the use of treatment monitoring instruments, therapists rely heavily on their subjective analysis of client improvement.

Utilizing Assessments with Psychotherapy

Assessment measures can be utilized throughout the psychotherapeutic process to efficiently provide information unavailable by other means. By providing a more frequent measurement of client psychological distress, assessments help to achieve greater effectiveness of service delivery. Assessments can assist in establishing the severity of psychological symptoms, personality characteristics, diagnostic information,

treatment selection, and outcome information (Maruish, 1999). Client outcomes data, central to this report, contain information regarding client response to psychotherapeutic treatment. The term *outcome* refers to factors related to clients' daily mental health and well-being that were directly or indirectly affected by mental health services rendered. To measure outcomes, clients are asked to respond to questions about their satisfaction of services, distress level, and perceived quality of life (Maruish, 1999).

Characteristics that Exhibit Client Response to Treatment

Maruish (1999) explains that psychotherapists must choose a measurement tool that appropriately examines psychological distress in their particular client population. Measuring a dynamic construct, such as psychological distress, helps providers to monitor changes throughout treatment. Psychological distress is a key construct because it is broad enough to capture most areas of psychological functioning and provides useful information for practitioners, regardless of diagnosis or treatment approach (Lambert, et al., 1996). Practitioners who choose to routinely utilize brief measures such as the OQ-45 in treatment settings will find that the benefits greatly outweigh the costs. In less than 5 minutes, clients provide beneficial information for immediate interventions (Miller, Duncan, Brown, Sorrell, & Chalk, 2006).

Sensitivity to Change

Client progress in psychotherapeutic treatment is an ongoing process; therefore assessment tools must remain sensitive to change. As treatment progresses, recurring measurement should show whether level of distress stabilizes, improves, or deteriorates. Scores obtained by the selected instrument should be able to reliably differentiate

between clients presenting with dysfunctional versus normal levels of distress. Quality research should provide evidence that assessments are reliably and accurately able to depict an acceptable level of psychological distress throughout therapy. Finally, ceiling and floor effects should not exist if instruments are to appropriately measure client change in community settings where clients have varying levels of distress (p. 237 - Maruish, 1999).

The Outcome Questionnaire – 45

To accurately measure client distress in treatment settings, Lambert and his associates developed the OQ-45 (Lambert, et al. 1996; Lambert Huefner, & Reisinger, 1996). OQ® Measures is an established assessment company that produces a growing family of instruments that track client change and notify practitioners about off-track cases before negative outcomes occur, such as treatment failure. The various assessments reliably indicate change in adults, youth, severe mentally ill, and military personnel. This report will focus on the OQ-45, the primary adult measure. OQ-Analyst® is the software used to administer, score, and tracks outcomes data instantly for the OQ measures. Additionally, the software provides detailed reports instantly to assist clinicians in providing quality services based on their clients' responses. OQ-Analyst® is now listed by the Substance Abuse and Mental Health Services Administration (SAMHSA) National Registry of Evidence-based Programs and Practices (NREPP) which supports the usefulness of the OQ-45 in practice.

The information generated by the OQ-45 is extremely valuable in practice and it only takes most people less than 5 minutes to complete the 45-item self-report inventory.

Various user-friendly modes of administration are supported, such as PC, Kiosk, PDA, Netbook, or scanning the paper form; increasing the ease of inclusion in daily practices. A recent enhancement even allows clients to complete the questionnaire on a touch screen Kindle Fire tablet. After clients complete the questionnaire, providers can choose to immediately view a report of their current distress level, critical items, alert status, and progress in treatment.

What the OQ-45 Measures

The OQ-45 is divided into three subscales to provide a clearer description of clients' level psychological distress. All items are written in a manner understandable for those with a sixth grade reading level or higher. The Symptom Distress (SD) scale primarily measures aspects of depression and anxiety as well as indications of substance abuse. Such factors are measured by the brief inventory due to their prevalence as the most frequently diagnosed conditions according to the National Institute of Mental Health (NIMH, 1988).

The second subscale of the OQ-45 is the Interpersonal Relations (IR) scale. Assessment of issues related to family, friends, and romantic relationships are included in this subset of items. To highlight common problems, the IR scale pulls for information regarding withdrawal, social isolation, relational conflicts, and feelings of inadequacy. Positive social interactions and healthy relationships contribute greatly to psychological well being, according to research on life satisfaction (Wells, Burlingame, Lambert, Hoag, & Hope, 1996).

Lastly, the Social Role Performance (SR) scale assesses for problems, as well as

satisfaction, with current status or level of distress in roles related to family, work, and leisure life. This scale is related to quality-of-life research that suggests dissatisfaction in these areas can affect one's psychological symptom presentation.

Clinically Significant Change and the OQ-45

There is a meaningful distinction between clinically significant change and statistically significant change when analyzing outcomes data. The importance of differences in scores from initial administration (prior to the first session) to later administrations is measured by the way in which clients experience distress in real life. Clients' subjective experiences of distress are related to the continuous range of OQ-45 scores. The OQ-45 total score can range from 0 to 180 and higher scores indicate greater distress. Respondents rate each of the 45 items on a 5-point Likert scale. In addition to the total score, results are provided for the SD, IR, and SR subscales to better illuminate which areas of distress are most concerning. For the change in raw scores to be meaningful, the scores had to be translated into clinical significance which Lambert and his associates (1996) did through the norming studies. To establish which changes in distress levels can be considered clinically significant through clients' raw scores over time, a sample representative of normal US population was needed. The norming studies sought heterogeneous groups of participants to fill out the OQ-45 over extended periods of time to establish a normative range of scores. With a snapshot of the distribution of scores yielded by the large pool of participants representing the general population, future client raw scores on the OQ-45 may then be judged to be within normal limits or in the dysfunctional range.

How Much Distress is Normal?

Lambert, Burlingame and others (1996) used their community and community mental health clinic samples to establish cutoff scores that indicate a separation of clinical and non-clinical populations by total OQ-45 score. University students, inpatients, and Employee Assistance Program participant data were not included to determine cutoff scores because they were determined to have confounding factors that complicated whether individuals belonged in a clinical or non-clinical category. The aim was to simplify the process for cutoff scores to represent a wide-ranging community population. One recurring criticism of the norming studies, however, is the lack of ethnic minority participant data. Cutoff scores provide a guideline for practitioners to interpret whether reported distress levels fall in the clinical or non-clinical range and assist in the comparison of change in distress level over time. Based on the normative data, the total OQ-45 score cutoff is 63; Symptom Distress Subscale: 36; Interpersonal Relations Subscale: 15; and Social Role Subscale: 12. Scores above these values indicate levels of distress expected among individuals in an outpatient clinical treatment setting. Alternatively, scores below these cutoff values indicate a non-clinical level of distress, or distress levels expected of individuals in a community sample not requiring psychological treatment.

How Much Change is Enough?

As client change is discussed, it is important to establish and quantify how much change is sufficient to substantiate claims that psychotherapeutic interventions were successful in treating the client. Thanks to a plethora of research projects by Dr. Lambert

and his associates, scores generated by the OQ-45 can be compared using the reliable change index (RCI; Jacobson, & Truax, 1991). The RCI is a number, specific to a given measure and population, as established by an equation. The RCI indicates clinically significant change in client symptom presentation based on pre and post-treatment scores. Compared to other methods, the RCI has been accepted as a reliable and effective way to identify those who improve clinically from psychotherapeutic treatment (Lunnen & Ogles, 1998). The RCI for the OQ-45 is derived by a formula applied to normative data collected specifically for the OQ-45 (see Figure 7).

Expected Recovery Curve or Dose-Response Curve

Clients who achieve clinically significant change in distress levels are deemed "recovered" when they begin treatment with OQ-45 scores in the clinical range and achieve a reduction of at least 14 points while also crossing below the cutoff score of 63 in later administrations. Common findings regarding clients who achieve recovery status as measured by the OQ-45 suggests individuals who respond within the first few sessions have much greater chance to maintain gains. Generally, clients who show improved OQ-45 scores early in treatment are more likely to achieve better outcomes (Lambert, 2005).

The most recent comprehensive study that used the OQ-45 to establish a survival curve showing average treatment length required for clinically significant change was in 2003 by Hansen and Lambert. Their findings suggest that a 50% recovery rate is found between 15 and 19 sessions of therapy. For clients to reach recovery status, clinically significant change must occur. Clinically significant change is designed to be an

indicator of positive outcomes in psychotherapeutic treatment. Recovery rates are established by the creation of a log-linear curve showing treatment response based on a large longitudinal dataset containing outcome information. Such rates establish average treatment lengths necessary for most clients (more than 50%) to show clinically significant change. The number of sessions required may seem lengthy in the 2003 study, but data were collected at different sites and specific recovery rates may differ for individual settings.

Many psychotherapy outcome studies gather participant data from multiple sites, masking potential differences between participants at each site (Hansen & Lambert, 2003). The present study gathers data at a single clinic with individuals from a diverse group varying in ethnicity, age, and income levels as compared to previous studies. To date, few studies have used the OQ-45 to evaluate treatment effectiveness for individuals from diverse and low-income populations.

Negative Outcomes

Determining when to conclude treatment for non-response to interventions is a difficult decision to make, but outcome measures make the process easier. One study found that no change or deterioration was actually deemed predictable based on initial severity score and an early failure to respond to treatment (Whipple, et al., 2003). Therefore, outcome measures provide therapists with feedback that signals when clients fail to respond early in treatment, which provides an opportunity to modify one's intervention strategy.

Therapist Feedback

The OQ-Analyst® acts as a clinical support tool (CST) by supplying providers with reports immediately after clients complete the measure. With such tools available, it is highly recommended that clients complete the OQ-45 prior to each psychotherapy session. Available in the report is a notification when clients are "not on track"; this happens if clients fail to respond throughout the first few sessions. Color-coded messages (white, green, yellow, and red) are supplied to therapists in addition to a graph displaying a summary of treatment progress through total OQ scores. Exact wording of the messages vary throughout treatment based on the situation. A red message in session 15 will communicate a greater sense of urgency compared to a red message delivered at session 3. Below are summarized examples of color-coded messages provided in a chapter by Lambert and Vermeersch (2008):

> ***White message:*** The client is functioning in the normal range. Consider termination.
>
> ***Green message:*** The rate of change the client is making is in the adequate range. No change in the treatment plan is recommended.
>
> ***Yellow message:*** The rate of change the client is making is less than adequate. Consider altering the treatment plan by intensifying treatment, shifting intervention strategies, and monitoring progress especially carefully. This client may end up with no significant benefit from therapy.
>
> ***Red message:*** The client is not making the expected level of progress. Chances are, he or she may drop out of treatment prematurely or have a negative treatment

outcome. Steps should be taken to carefully review this case and decide on a new course of action such as referral for medication or intensification of treatment. The treatment plan should also be reconsidered. Consideration should also be given to presenting this client at a case conference. The client's readiness for change may need to be reassessed.

The utilization of CST's, such as those provided by the OQ-45, can greatly benefit psychotherapists regardless of experience level. Research demonstrates that, regardless of training or experience, clinical judgment is largely positive and clinicians rarely indicate that their clients have worsened in treatment (Lambert, 2005). Therefore, in the interest of providing the most helpful services, providers benefit from knowing when clients are responding well, and when they are not (Lambert, 2005). After all, if providers are unaware of clients' lack of improvement in therapy, it is difficult to expect providers to change interventions to meet clients' needs.

CHAPTER III

METHOD

Procedures

This study was performed using archival data collected at the Texas A&M University Counseling and Assessment Clinic (CAC) in Bryan, Texas. The clinic is located within the federally qualified health clinic, Bryan-College Station Community Health Center. As mentioned previously, doctoral students in the Counseling Psychology and School Psychology programs at Texas A&M University primarily operate the CAC. The CAC is most often the first practicum training experience for the two programs. Individuals of all ages are welcome to request psychotherapeutic services at the CAC. Presenting problems vary greatly, but most often adults will report having concerns regarding depression, anxiety, relationship issues, and stress with life transitions.

Individuals seeking psychotherapy must complete telephone intake screenings with one of the doctoral student graduate assistants prior to treatment. The telephone screening determines whether their symptom presentation is appropriate for services, and if they are too psychologically dysfunctional (i.e. psychotic features, severe major depressive disorder, and suicidality) they may be referred to the Mental Health and Mental Retardation Authority (MHMR) of the Brazos Valley. During the telephone screening, potential clients will also report their estimated annual income to determine an estimated service-fee. Most individuals are assigned to a therapist and offered psychotherapy with no pre-determined number of sessions, leaving it up to the therapist

and client to decide when termination occurs. The type of theoretical orientation and approach taken in therapy differs by provider and may be based on recommendations by their supervisor. Program faculty and adjunct faculty, who are also licensed psychologists, supervise the therapist trainees. Research suggests when training clinics are assessed for effectiveness of care, client response to treatment may sometimes progress at a slower rate, but outcomes are comparable to similar settings with more experienced therapists (Callahan & Hynan, 2005).

Regular operating procedures at the CAC require clients to complete an informed consent prior to receiving counseling services. Within the context of this consent, clients agree that de-identified information from their chart may be used for archival research. Data for this study started being collected when the OQ-45 was adopted for regular use in 2005. Clients aged 18 and above, who attended 4 or more sessions, are included in the present dataset. The clinic handbook stipulates that counselors must complete an intake evaluation report and treatment plan prior to the fourth session. Therefore, it is expected that the first three sessions are considered pre-treatment, or the intake and evaluation phase. The regular treatment process begins by the fourth session because by then the treatment plan would be established. Though interventions may be in place during the first few sessions, clinically significant change is not expected in fewer than four sessions. Similar studies (Anderson & Lambert, 2001; Wolgast et al., 2005) only required clients to attend two or more sessions and subsequently complete a minimum of two OQ-45 inventories. The present study would have a larger sample size with only requiring a two-session minimum; however, it is difficult to justify the treatment

intervention as being the catalyst for client change after only attending a total of two sessions. Though all clients remained in treatment for a minimum of four sessions, clinically significant change, reliable change, and deterioration were reported if achieved at any point following the first OQ-45 administration.

The OQ-Analyst® software provided the methods for collecting and tracking client OQ-45 scores. The software collects ongoing OQ-45 score records for each client and is capable of producing reports related to client, counselor, and clinic summaries. Although rare, some individual administrations of the OQ-45 did not make it into the program database due to technical difficulties or operator error, leading to missing data points. Such errors were infrequent and determined insignificant in affecting the results of this study.

To address clinically significant change (CS), the present study adopted the Jacobson and Truax (1991) approach due to its usefulness and the regularity in which it has been employed in similar research studies that evaluated client change with the OQ-45. In their 1991 report, Jacobson and Truax specify four criteria necessary to indicate when clinically significant change occurs for clients receiving psychotherapy. Initially, clients must be assessed with an instrument that reliably measures change over time. Then, clients must score within the clinical range established for that particular instrument. Additionally, clients' scores during treatment must show reliable change. Lastly, clients' scores must reach the non-clinical range established for the instrument by the end of treatment.

A primary limitation of the previous studies is the homogeneity of samples.

Many of the OQ-45 studies' largest samples of participants consist of students from middle to upper-middle class family backgrounds at Bringham Young University. The present study evaluated whether results from prior studies would generalize to this particular community clinic setting characterized by clients from low-income households.

After the data were compiled and a final sample was established, clients were identified by four major categories for change: clinically significant change, reliable change, deterioration, and no significant change prior to termination. With such criteria for change, survival analyses were employed to establish dose-response relationships to explain the amount of intervention necessary to affect client distress among the majority of clients.

Participants

The client population for the CAC primarily consists of community members from the cities of Bryan and College Station, Texas. The approximate population of Brazos County, containing the two cities, is approximately 197,000 according to the 2011 U.S. Census Bureau. Additional clients from surrounding rural communities in Burleson, Grimes, Washington, Madison, and Robertson counties often seek services at the CAC as well. Aside from individuals who automatically qualify for services from MHMR (e.g., suffering from severe major depressive disorder, bipolar disorder, or schizophrenia) the CAC provides services for nearly any mental health issue. Some examples of commonly reported concerns are: anxiety, depression, post-traumatic stress, general stress issues, relationship issues, abuse (current or past), family-related stress, or

career and vocational concerns. As of September 1, 2012 there were 558 adult clients who attended at least one session during the time period analyzed in the present study. Inclusion criteria required that clients attend four or more sessions, with the fourth session considered the first session of the actual treatment phase. This inclusion criterion is a result of the clinic manual's definition of treatment planning and treatment phase. This requirement eliminated a total of 342 individuals who dropped out prior to attending four sessions, had incomplete demographic information, or were missing OQ-45 scores. Of those 342 individuals, 263 clients were either missing demographic information or OQ-45 scores. A smaller group had both demographic information and OQ-45 scores (n = 79), but did not attend at least four sessions. Given the high prevalence of missing data a final sample of 216 clients qualified for inclusion in this study. See table 1 for clarification of inclusion and exclusion rates.

Table 1

Included and Excluded Participants

Demographic Information Available	OQ-45 Scores Available	Attended 4+ Sessions	*n*	Included or Excluded from Study
Yes	Yes	Yes	216	Included
Yes	Yes	No	79	Excluded
Yes	No	Unknown	263	Excluded
No	Yes	Unknown		
TOTAL			558	

The final study sample included only those clients aged 18 and older who attended four or more sessions, completed a full OQ-45 for each session, and whose demographic data was complete and available through chart review. Three people were removed from the sample because they are considered outliers since they attended over 56 sessions and skewed the data analyses. No statistically significant differences in OQ-45 scores were found between genders in the final sample (N = 213) of which there were 56.8% female and 43.2% male. The final sample was composed of 9.4% (*n* = 20) African-American, 1.4% (*n* = 3) Asian, 64.3% (*n* = 137) Caucasian, 18.3% (*n* = 39) Hispanic/Latino(a), 4.7% (*n* = 10) Multiracial, 0.9% (*n* = 2) Native American, 0.5% (*n* = 1) Pacific Islander, and 0.5% (*n* = 1) not specified.

Among the information available for clients participating in the present study is their approximate poverty level. The clinic is housed in a federally qualified healthcare center and is required to report poverty levels of those individuals receiving services. The percentages reported are based on the US Department of Health and Human Services guidelines as reported by the Annual Statistical Supplement to the Social Security Bulletin, 2013 in Table 3.E8. The final sample consisted of 64.8% of clients falling below poverty level based on the number of people in their household. This factor highlights the uniqueness of the present study in relation to previous OQ-45 study samples largely consisting of middle to upper-middle class students at university counseling centers. Additionally, an independent samples t-test was used to determine whether there were statistically significant differences among participants from varying poverty levels. The independent samples t-test revealed no statistically significant

difference between individuals whose income fell below federal guidelines for poverty level (N=140) when compared to individuals above the poverty level (N=76) with regards to severity of psychological distress based on initial OQ-45 scores (t = -1.62, df = 214, (p > .05).

The final demographic information collected was client residential location. Many of the clients resided within the Bryan city limits (44.4%), which is where the clinic is located. Other clients resided in the adjacent city of College Station (33.8%) and the rest were from surrounding rural communities (21.8%).

Clients in the final sample received an average of 10.73 sessions after removing the three clients receiving over 56 sessions (their length of treatment ranged from 57 to 81 total sessions). Among clients included in the final sample, the median number of sessions was 8 and there were two modes at 4 and 5 sessions.

The previously mentioned demographic characteristics for the study sample (N = 213) are summarized in Table 2. The same demographic characteristics of the 79 clients who attended fewer than 4 sessions are summarized in Table 3. All clients were at least 18 years of age and consented to the future use of de-identified information for research purposes. Each client received services from January 2007 through August 2012. Clients complete the OQ-45 when they arrive at the clinic, prior to each and every session including their intake session. Client demographic information was gathered via physical chart review.

Table 2

Sample Characteristics

	M	*SD*	Range
Age	33.58	11.95	18 - 66
Pre-Treatment OQ-45 total score	78.31	29.5	2 - 145
Length of Treatment (sessions)	10.73	7.43	4 - 37

Gender, Ethnicity, Poverty Level, and Residential Location

Demographic	N	Percentage
Male	92	43.2%
Female	121	56.8%
Total	213	100%
African American	20	9.4%
Asian	3	1.4%
Caucasian	137	64.3%
Hispanic/Latino	39	18.3%
Multiracial	10	4.7%
Native American	2	0.9%
Pacific Islander	1	0.5%
Not Available	1	0.5%
Total	213	100%
Percent of Poverty Level		
Income Below Poverty Level	138	64.8%
100% - 150% of Poverty Level	45	21.1%
150% - 185% of Poverty Level	19	8.9%
>185% of Poverty Level	11	5.2%
Total	213	100%
Residence		
Bryan	95	44.4%
College Station	72	33.8%
Rural/Surrounding Areas	46	21.8%
Total	213	100%

Table 3

Demographic Characteristics of Individuals Attending < 4 Sessions

	M	*SD*	Range
Age	34.20	12.53	18 - 64
Pre-Treatment OQ-45 total score	86.30	29.53	7 - 173
Length of Treatment (sessions)	1.82	0.83	1 - 3

Gender, Ethnicity, Poverty Level, and Residential Location

Demographic	N	Percentage
Male	21	26.6%
Female	58	73.4%
Total	79	100%
African American	18	22.8%
Caucasian	40	50.6%
Hispanic/Latino	13	16.5%
Multiracial	8	10.1%
Total	79	100%
Percent of Poverty Level		
Income Below Poverty Level	58	73.4%
100% - 150% of Poverty Level	12	15.2%
150% - 185% of Poverty Level	4	5.1%
>185% of Poverty Level	5	6.3%
Total	79	100%
Residence		
Bryan	27	34.2%
College Station	32	40.5%
Rural/Surrounding Areas	20	25.3%
Total	79	100%

Comparisons were made between the study sample and the 79 excluded clients whose information was complete and available, yet attended fewer than 4 sessions. The two groups' demographic variables and initial OQ-45 scores were compared using student's *t* test to evaluate statistically significant differences. Not surprisingly, individuals who dropped out prior to their fourth session initiated treatment with statistically significantly ($p < .05$) higher OQ-45 scores.

A two-sample t-test between proportions was performed to determine whether there was a significant difference between the clients attending < 4 sessions and those attending 4 or more sessions with respect to the percent of individuals falling into each demographic category. The t-statistic was only significant at the .01 critical alpha level for the percentage of females and African Americans. Therefore, we are able to reject the null hypothesis and conclude that the difference in percentages of females and African Americans is significant between the samples. Outcomes of these analyses are recorded in Table 4.

Table 4

Comparison Data of Included (N = 213) and Excluded Participants (n = 79)

	t	df	*p* (two tailed)
t-tests evaluating differences in means between samples			
Age	0.389	290	0.698
Pre-Treatment OQ-45 total score	2.056	290	0.041[a]
t-tests evaluating differences in proportions of demographics between samples			
Males	2.76	154.8	0.997
Females	-2.76	154.8	0.003[b]
African American	-2.614	106.7	0.005[b]
Caucasian	2.101	133.9	0.981
Hispanic/Latino	0.375	144.5	0.646
Multiracial	-1.472	107.2	0.072
Below Poverty Level	-1.45	149.4	0.075
Above Poverty Level	1.45	149.4	0.949
Bryan	1.647	145.1	0.949
College Station	-1.047	134.6	0.149
Rural/Surrounding Areas	-0.659	132.5	0.256

[a] Statistically significant at the .05 level
[b] Statistically significant at the .01 level

Measures

Outcome Questionnaire-45: The Outcome Questionnaire – 45 (OQ-45) is the sole instrument providing client psychological distress information for the present study. The OQ-45 was explicitly designed to track client psychosocial functioning and psychological distress on a weekly basis (Lambert, et al., 1996). The instrument consists of 45 items in which clients respond by choosing among 5 Likert-type options ranging from never to always (0-4; Lambert, et al., 1996). The entire inventory takes average adult clients less than 5 minutes to complete and is designed for individuals with a 6th grade reading level and above. The OQ-45 inventory includes three subscales, Symptom Distress (SD), Interpersonal Relations (IR), and Social Role (SR), which are further described in the following paragraphs.

Symptom distress subscale: The largest of the three subscales, SD includes 25 items totaling 100 possible points to assess and describe the client's symptomatic functioning as related to common mental disorders (e.g., depression, anxiety, and substance abuse; Lambert, et al., 1996). Samples of items provided in the 1996 report are as follows: "I feel no interest in things; I tire quickly; I have difficulty concentrating" (p. 250).

Interpersonal relations subscale: Lambert and his associates based this subscale on their research regarding happiness and life-satisfaction as well as commonly reported client problems addressed in therapy. This subset of 11 items, totaling 44 possible points, is related to family, marriage, and friendship issues. Aspects like isolation, withdrawal, relational friction, and perceived inadequacy are also targeted. Samples of

items include: “I feel loved and wanted; I have trouble getting along with friends and close acquaintances; I am satisfied with my relationships with others” (Lambert, et al., 1996, p. 251).

Social role subscale: The remaining 9 items, contributing a possible 36 points, evaluates aspects related to client’s satisfaction with their involvement in work, family, and social life. The OQ-45 measures levels of distress, conflict, and dissatisfaction within those roles in this subset of items. Some item samples are: “I enjoy my spare time; I feel that I am doing well at work/school; I feel angry enough at work/school to do something I might regret” (Lambert, et al., 1996, p. 251).

Validity

Evaluated for convergent validity, the OQ-45 was compared against other common inventories such as the Symptom Checklist 90-Revised (SCL-90R), Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI), the Zung Self-Rating Depression Scale (ZSDS), the Zung Self-Rating Anxiety Scale (ZSAS), the Taylor Manifest Anxiety Scale (TMAS), the Inventory of Interpersonal Problems (IIP), and the Social Adjustment Scale (SAS) (Lambert et al., 1996, pp. 251, 252). Moderate to high correlations were found when the OQ-45 was compared to the above measures. Of particular interest, the correlational relationships were stronger between the depression and anxiety measures when compared to symptom distress, interpersonal relations and social role subscales individually, but all comparisons remained statistically significant ($p < .05$; Lambert, et al., 1996, p. 254).

Reliability

Among a subsample of 157 undergraduate students, session-by-session test-retest and internal consistency reliability coefficients were particularly strong, ranging from .70 to .93. Additionally, internal consistency reliability was measured among a larger sample collected from an Employee Assistance Program (EAP) and results were nearly identical to the student sample with all coefficients remaining significant at the .01 level of statistical significance (Lambert, et al., 1996).

Multicultural Sensitivity

The only area in which reviewers of the OQ-45 consistently suggest a need for increased evidential support is in its multicultural sensitivity. In an attempt to reduce such concerns, Lambert and his associates (2006) used archival data to match ethnic minority clients with Caucasian clients to see how their therapeutic outcomes compared. The study found no significant difference in therapeutic outcomes between groups regarding clinically significant change. These findings, however, should be considered preliminary. The study used information from a limited number of African American participants (n=29), and all participants were students at a single, religious-based, private university with a student body from middle and upper class families.

Labeling Client Progress with OQ-45

Recovered: Given an initial OQ-45 score of 64 or more, client distress levels must decrease by 14 or more total points in addition to passing below the cutoff (63) to meet criteria for clinically significant therapeutic change.

Reliably improved: Clients can improve with a total OQ score decrease of 14+ points from pre to post-treatment but does not pass below the cutoff score.

No-change: Another possible scenario occurs when clients remain within 14 points in either direction of their original pre-treatment OQ score. For clients in the non-clinical population, this status is perfectly acceptable. Clients with initial scores falling in the clinical range may want to explore additional routes to decrease their distress levels.

Deteriorated: Lastly, some clients will experience an increase of 14+ points in their total OQ score from pre to post-treatment. Deterioration may be due to issues in therapy but the OQ-45 does not identify the problem. Furthermore, deterioration can occur for many reasons external to treatment such as life-changing events (i.e., divorce, death of a loved one, or job loss).

Data Analyses: Survival Analysis

The present study utilized the Kaplan-Meier (1958) procedure for survival analysis. The Kaplan-Meier approach to survival analysis is a widely accepted nonparametric technique used to evaluate survival data (Collett, 1994; Greenhouse et al., 1989). Survival analyses estimates the proportion of a given population who will achieve a particular goal over an established period of time (Bauer, 2004). The Kaplan-Meier procedure evaluates raw data regarding number of clients meeting such criteria, as well as the number of clients that terminate therapy (also called censors in survival analysis terminology) without meeting the given criteria for change. For example, clients who terminate treatment without seeing a positive or negative change greater than 14 points

in their OQ-45 scores are censored from each respective survival analysis.

Planned Survival Analyses

Multiple survival analyses were necessary to adequately describe client changes as measured by the OQ-45. Each survival analysis highlights a different level of change (i.e. reliable improvement, clinically significant change, and deterioration) for clients beginning in both the clinical (initial OQ-45 scores above 63) and non-clinical (initial OQ-45 scores 63 or below) ranges of distress. Separate survival analyses were completed for the total sample, clients beginning in the clinical range, and clients beginning in the non-clinical range. The separate analyses encompass the different aspects of positive client change measured by the OQ-45. Below are explanations of each of the survival analyses.

Outline of Each Survival Analyses Planned

- Clinically Significant Change (Clinical portion of sample) – This analyses only included the individuals who began treatment with OQ-45 scores in the clinical range. This is because individuals in the non-clinical range are technically unable to achieve clinically significant change and would therefore skew the results. To make it clearer, it would be analogous to including individuals without depression in a study for treatment of depression and analyzing whether they successfully recovered from depression.
- Reliable Improvement (Non-Clinical portion of sample) – This analysis was run to determine the nature of positive change for individuals who began treatment with sub-clinical OQ-45 scores. It is important to recognize significant change

for them as well, even though it cannot be referred to as "clinically significant change".

- Reliable Improvement (Clinical portion of sample) – This analysis helped to understand positive reliable change for individuals who began treatment with OQ-45 scores in the clinical range, and remained in the clinical range for the duration of treatment. These individuals saw positive results but were unable to recover and achieve CSC. Additionally, this analysis may be compared to the CSC analysis because both analyses only included the individuals who began treatment with OQ-45 scores in the clinical range.
- Reliable Improvement (Full Sample) – This analysis tied the two former analyses together to determine survival statistics for the full sample when looking at positive reliable change in OQ-45 scores, without meeting CSC requirements. This analysis helped to describe when individuals experience positive change without achieving the status of "recovery" or CSC.
- Reliable Deterioration (Full Sample) – This analysis included the full sample and was important in understanding when clients deteriorate to a significant degree throughout treatment.
- Reliable Improvement and Clinically Significant Change (Full Sample) – To determine overall positive change for the full sample, including both RI and CSC, this analysis provided survival statistics describing the time it took to experience positive reliable change for all individuals in this study.

CHAPTER IV

RESULTS

The purpose of this study is to evaluate the number of sessions necessary for clients to meet the criteria for clinically significant change (CSC). CSC occurs when clients begin with OQ-45 scores in the clinical range and later reduce their OQ-45 score by 14 or more points while also moving into the non-clinical range during outpatient psychotherapy. Previous studies that used the dose-response evaluation of psychotherapeutic treatment established that approximately 11 to 16 sessions are needed for at least 50% of participants to reach clinically significant change (Anderson & Lambert, 2001; Kadera et al., 1996; Wolgast et al., 2005).

Clinical and Non-Clinical Status

Table 5 lists OQ-45 scores collected prior to clients' intake session. To determine non-clinical and clinical group membership, clients with an initial OQ-45 score of 63 or less received non-clinical status and clients with an initial score of 64 or more received clinical status. The cutoff criterion was established by normative data for the OQ-45 inventory (Lambert, et al., 1996).

Table 5

OQ-45 Scores at Pre-Treatment and End of Treatment

Clients Receiving ≥ 4 Sessions

Pre-Treatment	N	%	OQ-45 Mean	OQ-45 SD	Range
Clinical Range	146	68.50%	94.16	19.46	64 - 145
Non-Clinical	67	31.50%	43.76	13.95	2 - 63
Total Sample	213		78.31	29.5	2 - 145
End of Treatment					
Clinical Range	146	68.50%	78.1	28.85	7 - 150
Non-Clinical	67	31.50%	37.4	24	0 - 108
Total Sample	213		65.3	33.28	0 - 150

Clients Receiving < 4 Sessions

Pre-Treatment	N	%	OQ-45 Mean	OQ-45 SD	Range
Clinical Range	62	78.50%	96.77	22.93	64 - 173
Non-Clinical	17	21.50%	48.12	16.47	7 - 63
Total Sample	79		86.30	29.53	7 - 173
End of Treatment					
Clinical Range	62	78.50%	90.05	25.60	41 - 166
Non-Clinical	17	21.50%	47.41	17.10	1 - 66
Total Sample	79		80.87	29.72	1 - 166

Clinically Significant Change

There are two criteria necessary for clients to achieve clinically significant change (CSC). First, clients' OQ-45 scores must improve reliably with treatment (reliable change; RC), which is shown by a decrease in 14 or more points from their initial score. Second, client' scores must move from the clinical range (64 or above) to the non-clinical range (63 or below). Therefore, only clients who begin treatment with scores in the clinical range may be considered for CSC.

Table 6 displays the results of the CSC survival analysis of those clients in the clinical range prior to treatment. A total of 54 clients achieved CSC out of the 146 clients categorized as clinical at the beginning of treatment, and 11 clients achieved CSC within the first three sessions. The survival analysis indicates that 27% of clients can be expected to achieve CSC by the end of the 6th session, 54% can be expected to achieve CSC by the end of the 13th session, and 69% of clients can be expected to achieve CSC by the end of the 25th session. Figure 1 displays the resulting chart from the survival analysis of the clinical sample (n = 146) with clinically significant change as the criterion for change.

Table 6

CSC (Clinical Range) Survival Analysis (N = 146)

Sessions[a]	Number Attending	Number Censored[b]	Number Achieving CSC[c]	CSC Probability[d]
1	146	0	0	0
2	146	0	6	0.04
3	140	0	5	0.08
4	135	18	6	0.12
5	111	12	12	0.21
6	87	10	3	0.24
7	74	6	3	0.27
8	65	8	3	0.30
9	54	6	4	0.36
10	44	5	0	0.36
11	39	4	1	0.37
12	34	2	3	0.43
13	29	3	0	0.43
14	26	1	5	0.54
15	20	1	0	0.54
16	19	1	0	0.54
17	18	4	0	0.54
18	14	3	0	0.54
19	11	0	0	0.54
20	11	1	1	0.58
21	9	1	0	0.58
22	8	0	0	0.58
23	8	0	1	0.63
24	7	1	0	0.63
25	6	0	0	0.63
26	6	1	1	0.69
27	4	0	0	0.69
28	4	1	0	0.69
29	3	0	0	0.69
30	3	1	0	0.69
31	2	1	0	0.69
32	1	1	0	0.69

Total Censored: 92 (63%); Total Achieving CSC: 54 (37%)

[a] Number of sessions received

[b] Number of clients leaving therapy after this session without attaining CSC.

[c] Number of clients achieving CSC at this session.

[d] Cumulative probability, as calculated by survival analysis, of achieving CSC at this session.

[e] Beginning of treatment phase.

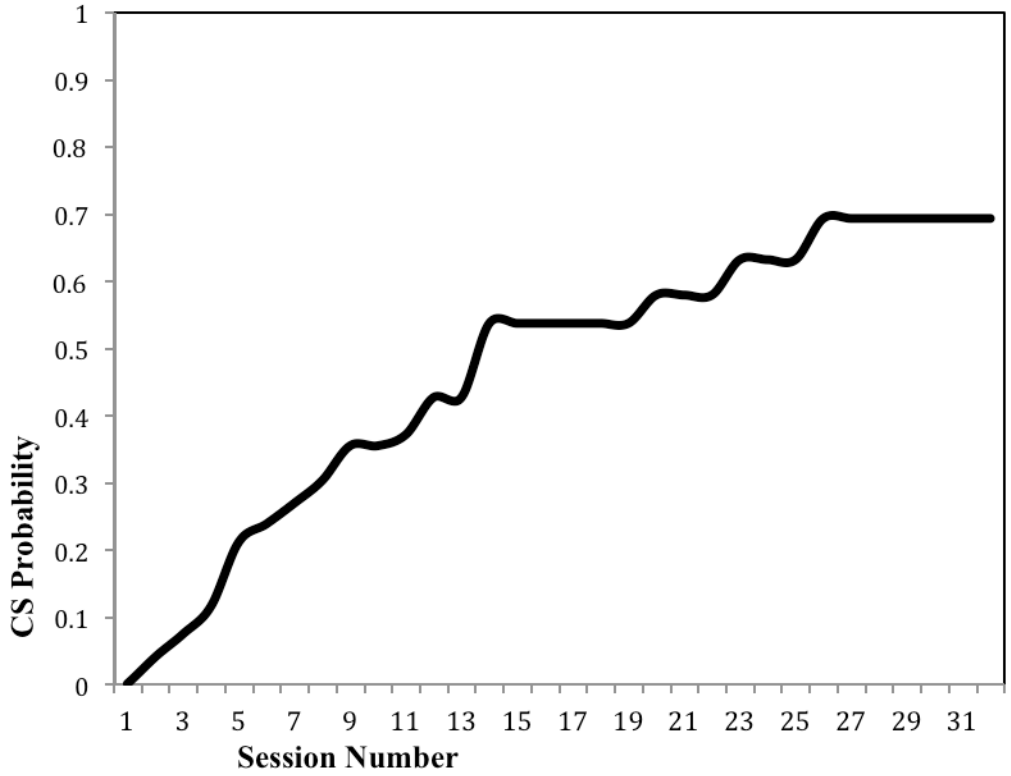

Figure 1. Probability for the Clinical Sample to Achieve CSC, N = 146

Reliable Change

Clinically significant change is only possible for those clients beginning treatment in the clinical range, but reliable change (RC, a change in client OQ-45 scores by 14 points or more in either direction) is possible regardless of a client's initial OQ-45 score. The present study evaluated both reliable improvement (i.e., decrease in OQ-45 score by 14 or more points) and reliable deterioration (i.e., increase in OQ-45 score by 14 or more points). In the first of these analyses, the clients who initially scored in the non-clinical range (i.e., OQ-45 score of 63 or less) were assessed for reliable improvement. This analysis is important because individuals beginning in the non-clinical range are still able to achieve noticeable gains in treatment without meeting criteria for CSC. For the second analysis assessing reliable improvement, the clients who initially scored in the clinical range, but did not meet criteria for CSC, were also assessed for reliable improvement. The individuals who achieved reliable improvement experienced significant gains in treatment but did not cross the cutoff score of 63 into the sub-clinical range, which disqualified them from meeting criteria for clinically significant change. This analysis did not include those individuals achieving clinically significant change. Additionally, data for all clients who did not meet criteria for CSC or reliable improvement were assessed for reliable deterioration (i.e., increase in OQ-45 score by 14 or more points). This final analysis of reliable deterioration reported the prevalence of clients' whose subjective distress worsened in the midst of receiving therapy. Lastly, to evaluate an overall level of improvement for the clients who received services at the clinic, the data from the full sample was analyzed for both CSC and

reliable improvement. In this analysis, the criterion for survival in the analyses was loosened to include clients who began treatment in both non-clinical and clinical OQ-45 ranges, and who reliably improved and achieved clinically significant change.

Reliable Improvement for Non-Clinical Sample

Figure 2 displays the resulting chart from the survival analysis of the non-clinical sample (n = 67) with reliable improvement as the criterion for change. By the end of 7 sessions, this sample reaches a plateau at which 35% (n = 21) of clients in this sample can be expected to reach reliable improvement, and 14 clients achieved reliable improvement within the first three sessions. The remaining individuals improved their OQ-45 scores by fewer than 14 points or deteriorated. Those who deteriorated by 14 or more points are highlighted in another analysis. Table 7 displays the Reliable Improvement results from the survival analysis performed on the non-clinical sub-sample.

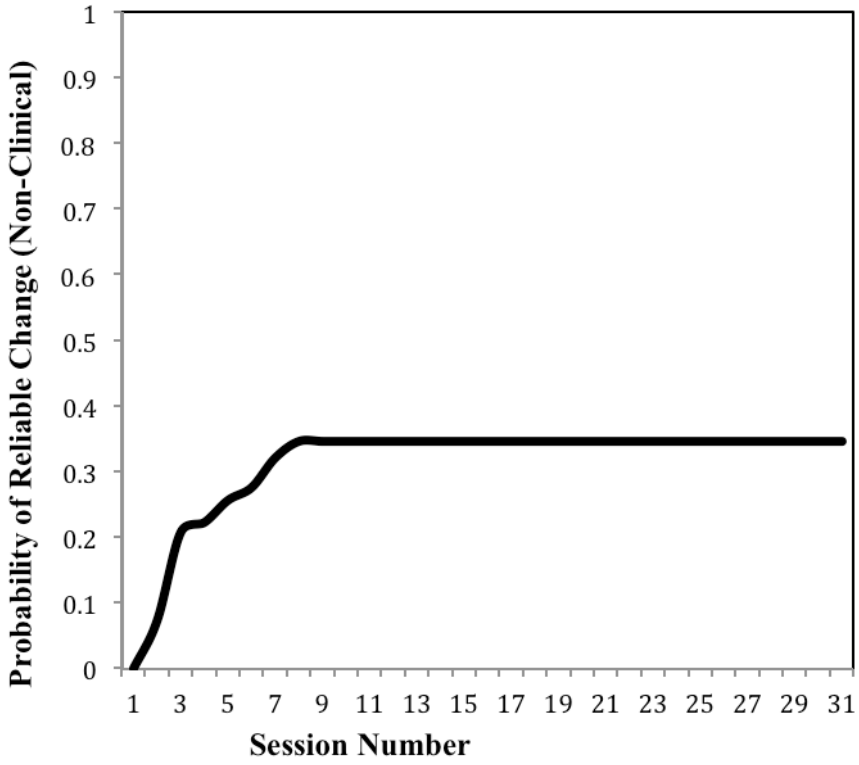

Figure 2. Probability of Reliable Improvement for the Non-Clinical Sample, N = 67

Table 7

RI (Non-Clinical) Survival Analysis (N = 67)

Sessions[a]	Number Attending	Number Censored[b]	Number Achieving RI[c]	RI Probability[d]
1	67	0	0	0.00
2	67	0	5	0.07
3	62	0	9	0.21
4[e]	53	6	1	0.22
5	46	6	2	0.26
6	38	5	1	0.28
7	32	3	2	0.32
8	27	1	1	0.35
9	25	3	0	0.35
10	22	7	0	0.35
11	15	3	0	0.35
12	12	1	0	0.35
13	11	1	0	0.35
14	10	1	0	0.35
15	9	0	0	0.35
16	9	0	0	0.35
17	9	0	0	0.35
18	9	0	0	0.35
19	9	2	0	0.35
20	7	0	0	0.35
21	7	3	0	0.35
22	4	1	0	0.35
23	3	0	0	0.35
24	3	0	0	0.35
25	3	0	0	0.35
26	3	1	0	0.35
27	2	0	0	0.35
28	2	1	0	0.35
29	1	0	0	0.35
30	1	0	0	0.35
31	1	1	0	0.35

Total Censored: 46 (69%); Total Achieving RI: 21 (31%)

[a] Number of sessions received

[b] Number of clients leaving therapy after this session without attaining RI.

[c] Number of clients achieving RI at this session.

[d] Cumulative probability, as calculated by survival analysis, of achieving RI at this session.

[e] Beginning of treatment phase.

Reliable Improvement for the Clinical Sample

Figure 3 displays the resulting chart from the survival analysis in which clients in the dysfunctional range meet criteria for reliable improvement without achieving clinically significant change. By the end of session 4, 28% of clients in this range can be expected to achieve reliable improvement, and 19 clients achieved reliable improvement within the first three sessions. Following 7 sessions, 50% can be expected to achieve reliable improvement and after 24 sessions, 82% of individuals can be expected to achieve reliable improvement. Table 8 displays the Reliable Improvement results from the survival analysis performed on the clinical sub-sample.

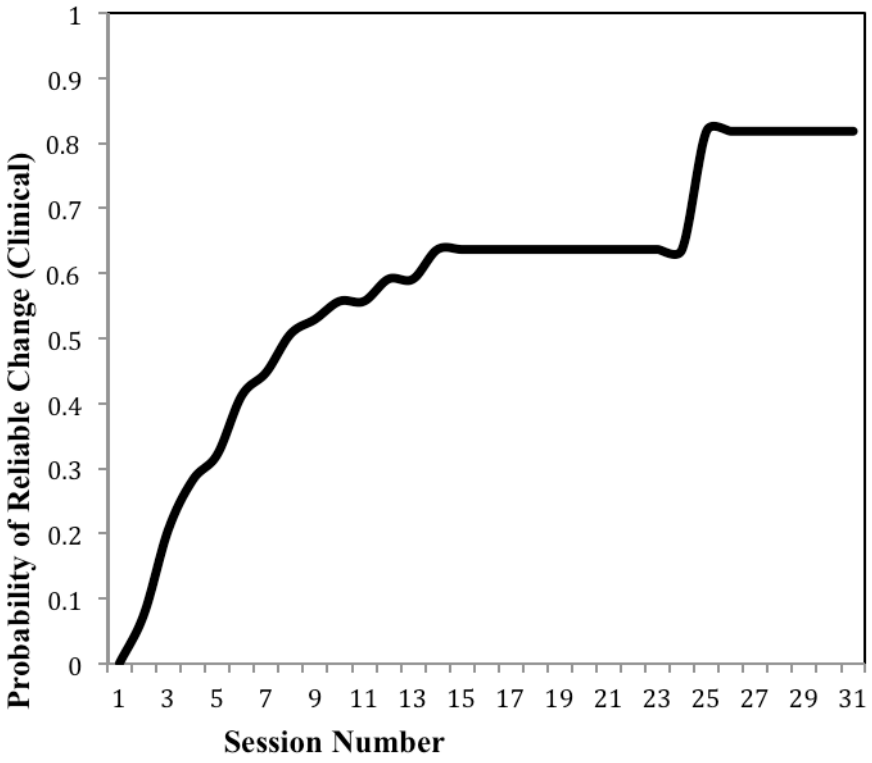

Figure 3. Probability of Reliable Improvement for the Clinical Sample, N = 92

Table 8

RI (Clinical) Survival Analysis (N = 92)

Sessions[a]	Number Attending	Number Censored[b]	Number Achieving RI[c]	RI Probability[d]
1	92	0	0	0.00
2	92	0	7	0.08
3	85	0	12	0.21
4[e]	73	11	7	0.28
5	55	7	3	0.32
6	45	6	6	0.41
7	33	3	2	0.45
8	28	3	3	0.51
9	22	4	1	0.53
10	17	3	1	0.56
11	13	0	0	0.56
12	13	2	1	0.59
13	10	1	0	0.59
14	9	0	1	0.64
15	8	1	0	0.64
16	7	1	0	0.64
17	6	1	0	0.64
18	5	1	0	0.64
19	4	0	0	0.64
20	4	1	0	0.64
21	3	0	0	0.64
22	3	0	0	0.64
23	3	0	0	0.64
24	3	1	0	0.64
25	2	0	1	0.82
26	1	0	0	0.82
27	1	0	0	0.82
28	1	0	0	0.82
29	1	0	0	0.82
30	1	0	0	0.82
31	1	1	0	0.82

Total Censored: 47 (51%); Total Achieving RI: 45 (49%)

[a] Number of sessions received
[b] Number of clients leaving therapy after this session without attaining RI.
[c] Number of clients achieving RI at this session.
[d] Cumulative probability, as calculated by survival analysis, of achieving RI at this session.
[e] Beginning of treatment phase.

Reliable Improvement for the Full Sample

Figure 4 displays the graph resulting from the survival analysis of data for the full sample when clients meet criteria for reliable improvement without achieving clinically significant change. Following 3 sessions, 26% of clients can be expected to meet criteria for reliable improvement. After 13 sessions were provided, 51% of clients can be expected to achieve reliable improvement and reached a plateau at 24 sessions, after which 61% of clients are expected to attain reliable improvement in their reports of distress. Table 9 displays the Reliable Improvement results from the survival analysis performed on the clinical and non-clinical sub-samples.

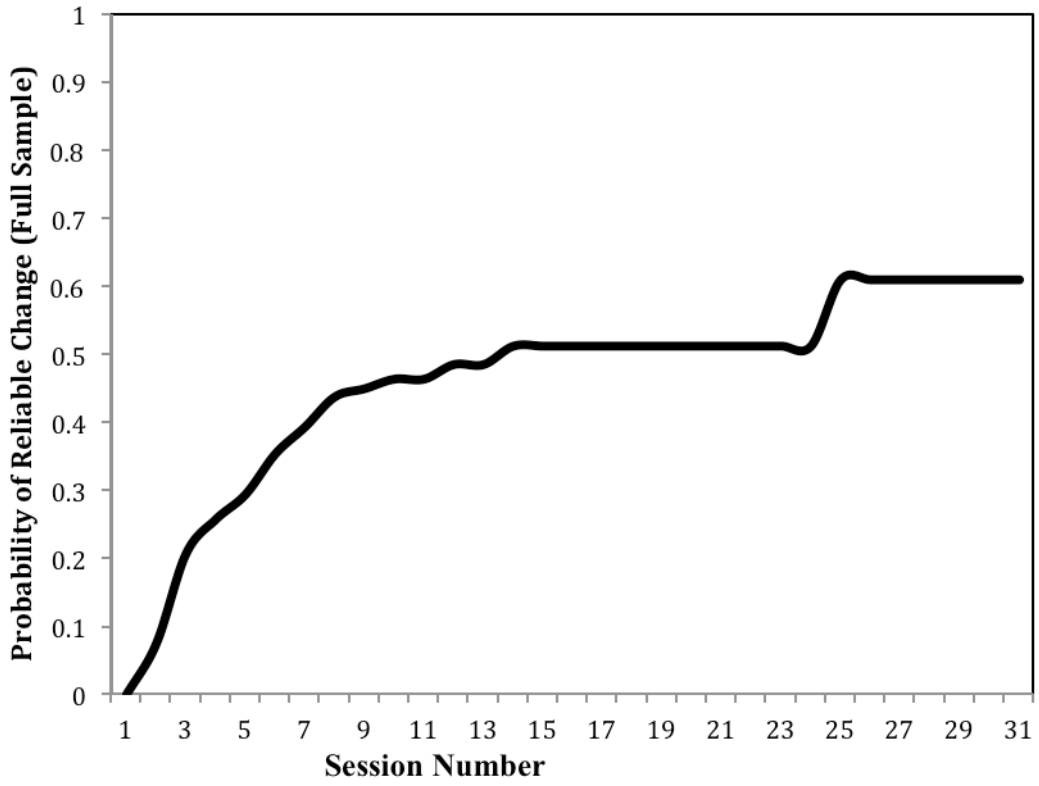

Figure 4. Probability of Reliable Improvement for the Full Sample, N = 159

Table 9

RI (Clinical and Non-Clinical) Survival Analysis (N = 159)

Sessions[a]	Number Attending	Number Censored[b]	Number Achieving RI[c]	RI Probability[d]
1	159	0	0	0.00
2	159	0	12	0.08
3	147	0	21	0.21
4[e]	126	17	8	0.26
5	101	13	5	0.29
6	83	11	7	0.35
7	65	6	4	0.39
8	55	4	4	0.44
9	47	7	1	0.45
10	39	10	1	0.46
11	28	3	0	0.46
12	25	3	1	0.49
13	21	2	0	0.49
14	19	1	1	0.51
15	17	1	0	0.51
16	16	1	0	0.51
17	15	1	0	0.51
18	14	1	0	0.51
19	13	2	0	0.51
20	11	1	0	0.51
21	10	3	0	0.51
22	7	1	0	0.51
23	6	0	0	0.51
24	6	1	0	0.51
25	5	0	1	0.61
26	4	1	0	0.61
27	3	0	0	0.61
28	3	1	0	0.61
29	2	0	0	0.61
30	2	0	0	0.61
31	2	2	0	0.61

Total Censored: 93 (58%); Total Achieving RI: 66 (42%)

[a] Number of sessions received

[b] Number of clients leaving therapy after this session without attaining RI.

[c] Number of clients achieving RI at this session.

[d] Cumulative probability, as calculated by survival analysis, of achieving RI at this session.

[e] Beginning of treatment phase.

Reliable Deterioration for the Full Sample

Figure 5 displays the graph from the survival analysis in which clients neither reliably improved nor met criteria for clinically significant change, but reliably deteriorate on their OQ-45 score. This analysis suggests that 54% of clients who reliably deteriorate can be expected to see that deterioration (i.e., increase OQ-45 score by 14 or more points) after seven sessions, and 29 clients experienced reliable deterioration within the first three sessions. Of clients who reliably deteriorate, this analysis suggests 70% of clients can be expected to reliably deteriorate after 14 sessions. Table 10 displays the Reliable Deterioration results from the survival analysis performed on the clinical sub-sample.

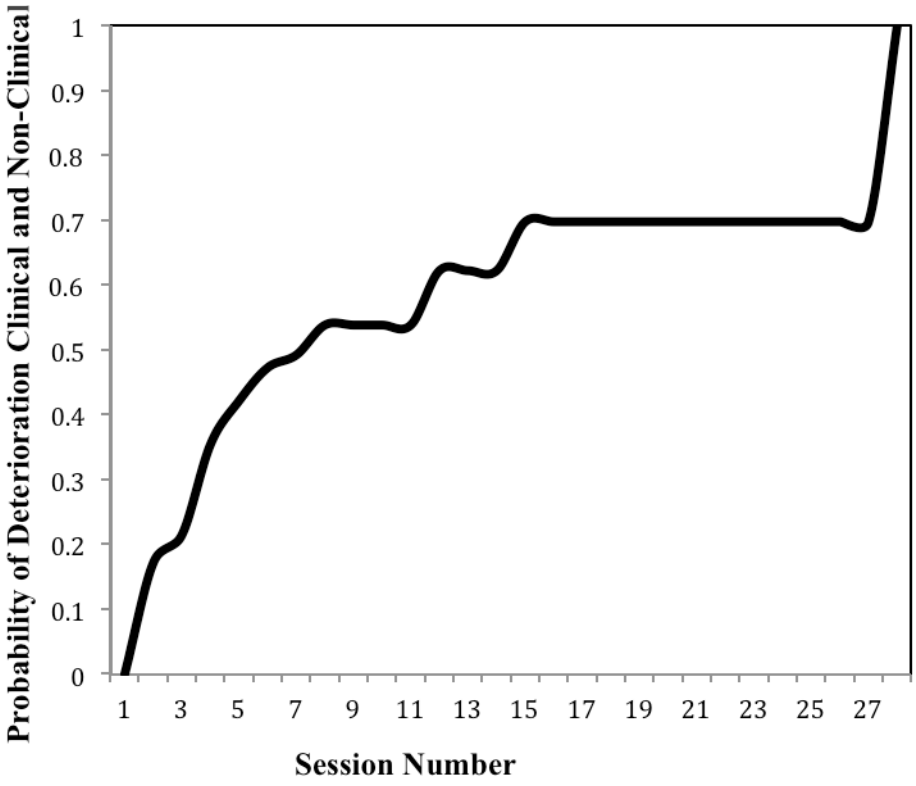

Figure 5. Probability of Reliable Deterioration for Clients Not Improving, N = 93

Table 10

RD (Clinical and Non-Clinical) Survival Analysis (N = 93)

Sessions[a]	Number Attending	Number Censored[b]	Number Achieving RD[c]	RD Probability[d]
1	93	0	0	0.00
2	93	0	16	0.17
3	77	0	4	0.22
4[e]	73	12	13	0.35
5	48	9	5	0.42
6	34	4	3	0.47
7	27	4	1	0.49
8	22	2	2	0.54
9	18	2	0	0.54
10	16	4	0	0.54
11	12	1	0	0.54
12	11	1	2	0.62
13	8	2	0	0.62
14	6	1	0	0.62
15	5	1	1	0.70
16	3	1	0	0.70
17	2	0	0	0.70
18	2	0	0	0.70
19	2	1	0	0.70
20	1	0	0	0.70
21	1	0	0	0.70
22	1	0	0	0.70
23	1	0	0	0.70
24	1	0	0	0.70
25	1	0	0	0.70
26	1	0	0	0.70
27	1	0	0	0.70
28	1	0	1	1.00

Total Censored: 45 (48%); Total Achieving RD: 48 (52%)

[a] Number of sessions received
[b] Number of clients leaving therapy after this session without attaining RD.
[c] Number of clients achieving RD at this session.
[d] Cumulative probability, as calculated by survival analysis, of achieving RD at this session.
[e] Beginning of treatment phase.

Combined Reliable Improvement and Clinically Significant Change

Figure 6 displays the resulting graph from the survival analysis of data from all clients, which determines when both reliable improvement and clinically significant change (CSC) may occur. After only three sessions, 27% (n = 58) of the sample can be expected to achieve reliable improvement or CSC. Following seven sessions, over half of clients (52%) can be expected to experience either reliable improvement or CSC and 76% can be expected to achieve CSC or reliable improvement after 22 sessions. Figure 6 displays the survival curve for this survival analysis. Table 11 displays the Reliable Improvement and Clinically Significant Change results from the survival analysis performed on the full sample.

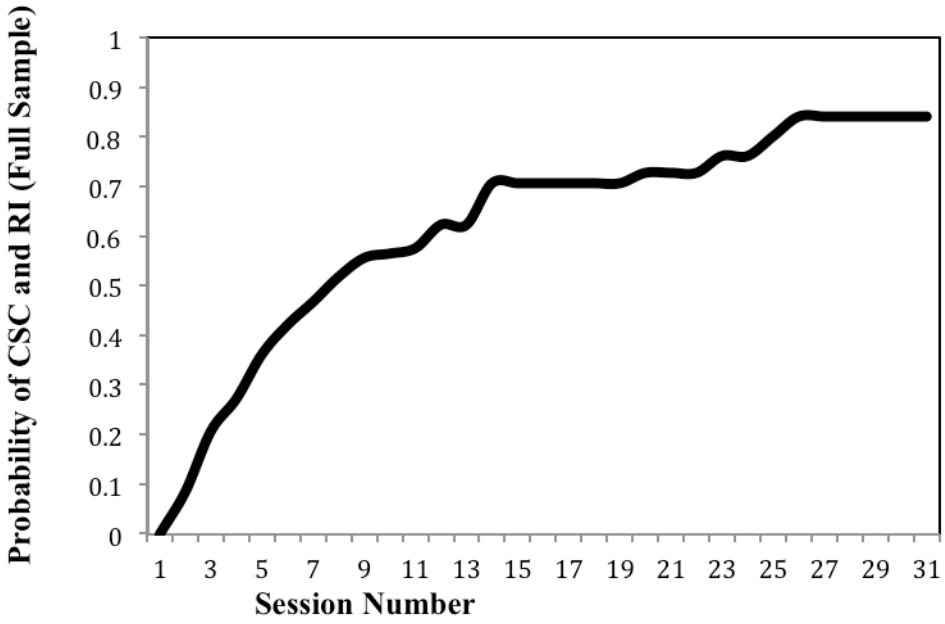

Figure 6. Probability of Reliable Improvement and CSC for the Full Sample, N = 213

Table 11

RI and CSC Survival Analysis: Full Sample (N = 213)

Sessions[a]	Number Attending	Number Censored[b]	Number Achieving RC or CS[c]	RC and CSC Probability[d]
1	213	0	0	0
2	213	0	18	0.08
3	195	0	26	0.21
4[e]	169	17	14	0.27
5	138	13	17	0.36
6	108	11	10	0.42
7	87	6	7	0.47
8	74	4	7	0.52
9	63	7	5	0.56
10	51	10	1	0.56
11	40	3	1	0.58
12	36	3	4	0.62
13	29	2	0	0.62
14	27	1	6	0.71
15	20	1	0	0.71
16	19	1	0	0.71
17	18	1	0	0.71
18	17	1	0	0.71
19	16	2	0	0.71
20	14	1	1	0.73
21	12	3	0	0.73
22	9	1	0	0.73
23	8	0	1	0.76
24	7	1	0	0.76
25	6	0	1	0.80
26	5	1	1	0.84
27	3	0	0	0.84
28	3	1	0	0.84
29	2	0	0	0.84
30	2	0	0	0.84
31	2	2	0	0.84

Total Censored: 93 (44%); Total Achieving RC and CS: 120 (56%)

[a] Number of sessions received

[b] Number of clients leaving therapy after this session without attaining CSC.

[c] Number of clients achieving reliable improvement or CSC at this session.

[d] Cumulative probability, as calculated by survival analysis, of achieving CSC at this session.

[e] Beginning of treatment phase.

Reliable Change Index and Cutoff Score

Norming studies were conducted for the OQ-45 to establish a reliable change index (RCI) and a cutoff score to differentiate between non-clinical and clinical levels of distress as measured by the OQ-45 total score. Using the formulas in figure 7, a new RCI and cutoff score were calculated for the sample collected for the present study. The present sample has a calculated RCI of 13 and cutoff score of 64. This finding suggests that a slightly higher initial OQ-45 score is required for clients to belong to the clinical group and slightly less overall change is required to indicate reliable change in total scores. No new survival analyses were conducted using these new RCI and cutoff scores because only two clients in the present sample would change from an initial determination of clinical to non-clinical. A larger sample would be required to develop new survival curves based on the new RCI and cutoff score.

Cutoff Score Formula: $$c = \frac{(SD_1)(M_2)+(SD_2)(M_1)}{SD_1+SD_2}$$

Reliable Change Index Formula:

$$RCI = \frac{(pre) - (posttreatment)}{S_{diff}} = 1.96$$

$$S_{diff} = \sqrt{2S_E^2}$$

$$S_E = SD\sqrt{1 - r_{XX}}$$

Figure 7. Formulas for Calculating a Cutoff Score and RCI

CHAPTER V

SUMMARY

The purpose of this research was to inform practitioners about the effectiveness of outpatient psychotherapy in community-based counseling centers for individuals from low-income and rural areas. The hope was to generalize these findings to other similar community-based counseling centers. Practitioners in similar settings may gain useful information regarding clinically significant change (CS), reliable improvement, and deterioration of client distress levels throughout treatment as usual, if they use the OQ-45 as a clinical support tool.

Jacobson and Truax (1991) have established clear and concise guidelines for measuring CSC. In the present study, those guidelines led to the following criteria for client change. The recommendation is that clients begin in the clinical range on a reliable assessment (i.e., initial OQ-45 scores > 63) and must improve reliably (i.e., decrease OQ-45 score by at least 14 points) while entering the non-clinical range of scores (i.e., OQ-45 score <64 at a later session).

The present study used survival analysis to analyze data from 213 clients who received 4 or more sessions of outpatient psychotherapy at the Texas A&M University Counseling and Assessment Clinic in Bryan, Texas. Survival analysis is a multivariate statistical process that can be used to answer research questions regarding amount of time or treatment required to achieve a particular response. Sometimes referred to as a dose-response relationship, the primary relationship examined in the present study can

be described as the number of sessions required for clinically significant change. The primary survival analysis was conducted specifically targeting time in psychotherapy for clients to achieve CSC. Additional survival analyses were performed to investigate the relationship of time in psychotherapy required for clients to exhibit reliable improvement, reliable deterioration and a combination of reliable improvement and clinically significant change.

Additional analyses were performed to investigate whether the present sample required a different cutoff score and/or reliable change index (RCI). Data was collected from a more diverse population (i.e., more rural, higher poverty, more minority representation) in comparison to previous similar studies on which the OQ-45 was normed. As a result, it was important to investigate the degree to which the clinical cutoff score and RCI based on the current sample would vary from the published norms.

Research Question One: Reviewing CSC, RC and Deterioration Results

Clinically significant change: Thirteen sessions of outpatient psychotherapy were needed for 54% of clients to achieve clinically significant change (CSC) according to results of survival analysis in the present study (see Table 1). Previous studies found anywhere from 11 to 16 sessions necessary for 50% of their clients to achieve CSC (Anderson & Lambert, 2001; Kopta et al., 1994; and Wolgast et al., 2005). Variation between the composition of client demographics and collection of data may result in such differing estimates. The results of the present study are reasonable and fall right within the range of previous research findings.

Reliable improvement: Much like results from the survival analysis of CSC, the analysis of the full sample suggested that thirteen sessions were necessary for 51% of clients to achieve reliable improvement. When separated into clinical and non-clinical groups, analyses results suggested a difference in time necessary for change.

The non-clinical group reached a plateau after 7 sessions where 37% of clients showed reliable improvement. This low number indicated that fewer clients with a lower initial OQ-45 score improved reliably (i.e., by 14 or more points). These results may suggest that a different measure of improvement be used with clients who fall in the non-clinical range due to the nature of their reasons for seeking treatment. Practical significance in the change experienced by individuals in the non-clinical range may be less noticeable on the OQ-45 (i.e. less than 14 points); therefore, a more sensitive measure may be required to measure meaningful change. Rather than measuring distress with the OQ-45, it may also be helpful to measure different constructs such as quality of life or changes in relationships.

The clients in the clinical range, however, succeeded in achieving a 50% reliable improvement rate after only 7 sessions. These are clients who began treatment in the clinical range and improved by 14 or more points, but did not enter into the non-clinical range by the end of treatment. This finding is in line with the expectation that treatment should reduce the symptoms measured by the OQ-45.

Deterioration: The clients who neither reliably improved (RI) nor met criteria for CSC were evaluated for reliable deterioration (RD) in their OQ-45 scores (i.e., increased score by 14 or more points). According to results of this survival analysis, if after seven

sessions clients do not improve, 54% will RD. Following the fourteenth session, 70% of these clients will deteriorate by 14 or more points.

Reliable improvement and clinically significant change: To evaluate overall improvement for the entire sample of clients, CSC and RI were combined as a criterion for change in this final survival analysis. Following seven sessions of treatment, 52% of clients experience RI or CSC and 76% will reach this achievement after twenty-two sessions. Essentially, any client that improves their OQ-45 score by more than 14 points, they achieve the required change for this analysis. This analysis is a good example of general improvement among the clients served at the participating clinic. Although not as stringent as CSC, RI is a desirable outcome for the present population. When separated among the total sample, 25% (n = 54) of individuals achieve CSC and 31% (n = 66) achieve RI. Notably, more individuals in the present sample achieved RI and CSC when combined (56%; n = 120) than those who experienced no change (21%; n = 45) or RD (23%; n = 48) combined for a total of 44% prior to termination of psychotherapy.

Research Question Two: Reviewing Results of Poverty Level Differences

Independent samples t-tests revealed no statistically significant differences between individuals who fell below federal poverty level guidelines and those with income above poverty level with regard to RI, CSC, or RD. There were also no statistically significant differences between the study sample and those individuals excluded from the study concerning poverty level.

Research Question Three: Reviewing Results of RCI and Cutoff Score

The clients in the present sample obtained, on average, a higher initial OQ-45

score than previous studies (Anderson & Lambert, 2001; Wolgast et al., 2005), which indicates greater initial psychological distress. A new reliable change index (RCI) and cutoff score were calculated by utilizing the same equations as the original studies. Results support the hypothesis that a higher cutoff score (i.e., 64 instead of 63) and a lower RCI (i.e., 13 instead of 14) are more appropriate for the present population. These newly calculated criteria indicate that a minimally higher initial distress level must be present to be considered clinical and a slightly smaller change in total OQ-45 score is necessary to achieve reliable improvement. Due to the marginal change (one point in each case) in both the criteria for the cutoff score and RCI, the present study utilized the criterion established by norming studies to assist in continued comparison with prior research. Additionally, a larger sample size is recommended to test the new criteria for change, therefore future study is encouraged.

Limitations

There are various limitations that come with the review of archival databases. The strict need for de-identification and confidentiality prohibits any potential follow-up with participants in the study. Without follow-up, there is no way to tell if treatment gains are sustained after termination of treatment or what reasons led to termination. Although it would be interesting to understand whether clients value their treatment, prior research found no statistically significant differences in therapeutic change between clients who were satisfied or unsatisfied with treatment (Anderson & Lambert, 2001).

The present study used archival data and therefore did not control the information collected from participants. Additional reliable assessments of psychological functioning would add to the quality of future outcome research and allow for accuracy checks related to outcomes reported. Accuracy checks are always encouraged when possible and future studies addressing treatment outcomes in community-based clinics should support the use of multiple comparable assessments to enhance the reliability of findings. In addition to multiple assessment measures, it would have been helpful to utilize termination summaries to gather information from providers. What would you be looking for? Future studies could enhance descriptions of clients who benefit from treatment with rich information available in termination summaries.

The present study has a relatively small sample in comparison to Wolgast et al. (2005), but the participants in the current study belong to a unique population consisting of more rural and low-income individuals rather than middle or upper-middle class college students. Future study is recommended to further evaluate treatment outcomes in community-based health centers that provide services for individuals from low-income households in other rural areas. It would be particularly beneficial for various regions of the country to be represented in future samples to enhance the generalizability of the current findings.

As demonstrated by the statistically significant differences between the excluded and included participants from this study, it is important to reiterate this sample was restricted to available data. Over half the clients seen in the clinic for the duration of the study were eliminated due to missing data. Future iterations of this study should attempt

to secure data for a greater number of clients in this participant pool. Additionally, clients attending fewer than 4 sessions were eliminated from study for theoretical reasons regarding the operational definition of treatment planning versus treatment. It would have been helpful to study those individuals' treatment outcomes to evaluate change in distress during their brief tenure at the clinic.

The information gathered for analysis was solely focused on client improvement based upon a single measure and paired with only basic demographic information. More detailed information (e.g., diagnosis, reason for termination, number of no-shows to appointments, etc.) could be included in future studies, which may provide additional insights beyond those obtained in the current study. Investigators will need to consider current gaps in the knowledge base when developing future studies.

Clinical Implications

The results of this study echo the findings of multiple previous studies with regard to the number of sessions required to see significant change in client functioning. Falling within the range of 11 to 16 sessions necessary for over half of clients to reach CSC (Anderson & Lambert, 2001; Kopta et al., 1994; Wolgast et al., 2005) this study found 13 sessions to be a suitable number for more than half of clients to achieve CSC. Additionally, prior research found total rates of CSC improvement to be anywhere from 29.7% (Wolgast et al., 2005) to 45% (Kadera et al., 1996) with this study achieving a 37% CSC rate for the total sample. In contrast to prior studies, reliable improvement was achieved after 7 sessions in the present study whereas 9 to 10 sessions were necessary to achieve reliable improvement in other settings (Anderson & Lambert, 2001; Wolgast et

al., 2005).

The sample used in this study performed poorly with regard to deterioration. Previous studies found overall deterioration rates of anywhere from 1.3% to 18.5% (Anderson & Lambert, 2001; Kadera et al., 1995; Wolgast et al., 2005), whereas results indicate that this sample reached a deterioration rate of 23%. Although, a notable 69% of clients who deteriorate in this sample did so before their fourth session, which is a larger overall percentage than previous studies. Because the fourth session marks the beginning of the treatment phase, as mentioned in the clinic handbook, clients are showing significant deterioration on the OQ-45 during the treatment-planning phase. Given that the actual treatment is set to begin in the fourth session, which is after clients are already seeing reliable increases in their OQ-45 scores, it is reasonable to conjecture that many of the clients are experiencing increased distress resulting from significant extraneous life stressors. Although it is possible to build a strong working alliance to build within the first couple sessions, it is always important to remember that common factors may often account for relief from symptoms of distress.

This study used more stringent inclusion criteria than previous studies with regard to minimum treatment duration. To be included in this study, clients needed to attend at least four sessions, prior to which they were required to complete OQ-45 inventories. This particular inclusion criterion eliminated many potential participants, but increased the likelihood that treatment played a significant role in client change over time. Additionally, the initial OQ-45 score is obtained just before clients' intake session. By clinic guidelines, this session is largely devoted to gathering historical information

and pertinent data for beginning treatment. The next two sessions are available for the clinicians to gather information necessary to create a treatment plan. Individuals who attend less than four sessions may drop out for various reasons, but major changes in their psychological function should be cautiously considered to be a direct result of therapy for only four sessions.

The results of this study reinforce findings from past research with regard to treatment duration necessary for clinically significant change and reliable improvement. With a methodical review of client outcomes and perceived improvement during therapy, comes the opportunity for practitioners to review their own work with clients and identify client progress. When practitioners are informed of client progress they can make decisions to alter treatment and increase the chance of treatment success. This holds especially true for psychologists-in-training like those practicing at the clinic involved in this study. Therapist experience level, overall, does not seem to greatly impact the results of this study compared to similar prior research. However, regarding the clients who deteriorated, it is possible that therapist factors (e.g., inexperience, maturity, emotional health) could have impacted the treatment outcomes. Further investigation is necessary to evaluate therapist factors and how they interact with client outcomes.

Some organizations impose limits on the length of psychotherapy available to clients. Instead of using these results to impose limits, practitioners can use the treatment length milestones (i.e., 7 sessions for 50% of clients to reach RI and 13 sessions for 50% of clients to reach CSC) to initiate progress checks. Evaluating the length of treatment

necessary to achieve clinically significant change in a community-based clinic, such as the one in this study, is helpful information for a large number of active practitioners in the country today. Previous studies provided practitioners with treatment length suggestions that were based on research done predominantly at student counseling centers. Prior research lacks generalizability to low-income and rural living clients, emphasizing the need for this study.

Finally, the usefulness of survival analyses and dose-response relationships in psychotherapy outcomes research is clear. The ever-changing field of psychological treatment delivery requires constant updating so organizations may effectively treat their consumers. In gaining understanding of treatment gains and when they occur, practitioners can practice in an informed manner and make decisions based on data rather than guesswork. Outcomes data are recommended for use in the daily operations of clinics regardless of setting or clientele. All practitioners, new and experienced, can benefit from continual monitoring regarding client progress throughout the treatment delivery process.

Future Research

The present study highlights some areas of limitation in the field of research when it comes to investigating client improvement as measured by the OQ-45 throughout psychotherapeutic treatment. Most of the limitations in existing research are related to the populations being repeatedly studied. Few studies adequately investigate the influence of ethnicity on treatment effectiveness as measured by the OQ-45. There are various approaches researchers may choose to pursue. Some viable options are to

evaluate the degree to which client ethnicity, therapist ethnicity, or client-therapist ethnicity matching produce positive outcomes. Future studies need larger samples of participants from multiple ethnic backgrounds to support their findings.

Another participant demographic that needs to be more thoroughly sampled is of individuals from low-income households. Many prior studies involve participants who are either students attending a university or individuals working in a corporation with an Employee Assistance Program. Often, practitioners providing mental healthcare in federally qualified healthcare centers may not be in the position, or have the resources, to implement lengthy client outcomes research studies. However, outcomes and treatment effectiveness are vital information for those practitioners providing brief mental healthcare to individuals living below poverty level. Data that reflects positive treatment effectiveness can help provide a rationale for federally qualified healthcare centers to maintain their funding from local, state, and federal entities.

Future research would do well to include therapist demographics when evaluating treatment effectiveness. All of the providers in the present study are doctoral trainees in a counseling psychology program. Future studies may choose to include the therapist demographics as they match or mismatch with client demographics to further investigate factors that may influence therapeutic change (Lambert et al, 2006). Such studies would either dispute or add to the current literature showing that client-therapist matching may not play a significant role in therapeutic outcomes. It would also be helpful to evaluate treatment outcomes with respect to therapeutic orientations.

Additionally, future research would benefit by including supplementary measures

sensitive to clients' perceived treatment grains and increased life satisfaction. Utilizing multiple measures at pre-treatment and post-treatment phases increases the likelihood of validating the findings. Providing clients with brief questionnaires like the Patient Health Questionnaire (PHQ-9) and the OQ-45 before and after treatment would give better behavioral and mental health anchors. In addition to self-reported outcomes, other criteria would be beneficial to include in measurement of treatment gains. Other criteria could include feedback from family members, therapist rating scales, and measuring other client characteristics (e.g., maturity, self-esteem, motivation for change). Future studies would also do well to employ additional data-analytic strategies to bolster the findings related to required time in therapy to attain CSC. In conclusion, there is a great deal of research to be done. Whether evaluating treatment as usual, or implementing a randomized clinical trial, there is much to learn in the area of client improvement and treatment gains in psychotherapy.

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